UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,872	11/17/2003	Diane M. Ruezinsky	MONS:074US	5189

46795 7590 11/14/2006

FULBRIGHT & JAWORSKI, LLP
600 CONGRESS AVENUE, SUITE 2400
AUSTIN, TX 78745

EXAMINER	
KALLIS, RUSSELL	

ART UNIT	PAPER NUMBER
1638	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,872	RUEZINSKY ET AL.	
	Examiner	Art Unit	
	Russell Kallis	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-14,16,17,19-21 and 28-30* is/are pending in the application.

4a) Of the above claim(s) *14,16 and 17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12,13,19-21 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/21/04;6/06/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *attachment #1*.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, Claims 1-13, 19-21, 28-30 and 36; and SEQ ID NO: 147 in the reply filed on 6/30/2006 is acknowledged. The traversal is on the ground(s) that Group II claims should be examined with Group I claims because the food products of Group II would have the genetic material claimed in Group I. This is not found persuasive because the claims do not state that the genetic material of Group I is actually in the food products of Group II. For example an isolate of starch or protein would not necessarily contain DNA or a fermented beverage i.e. a food product like beer would not contain the DNA as well. If Applicant were to amend the claims to recite that the DNA is comprised by those product claims of Group II, then Group II claims would be rejoined with Group I. Further, Applicant has traversed the restriction to a single nucleotide sequence because both SEQ ID NO: 2 and 3 share sequence similarities of 77-80% over 'substantial portions', and that presumably, a search can be made of all three sequences without serious burden. This is not found persuasive because searching two extra sequences presumed to have the same activity as the elected sequence absent any evidence or proof that SEQ ID NO: 2 or 3 would has the same activity as that of SEQ ID NO: 147 would require more time and would be a serious burden.

The requirement is still deemed proper and is therefore made FINAL.

Claims 11, 15, 18, 22-27 and 31-36 are cancelled. Claims 1-10, 12-14, 16-17, 19-21, 28-30 are pending. Claims 14 and 16-17 are withdrawn. Claims 1-10, 12-13, 19-21 and 28-30 are examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 10, in line 3 recites the broad recitation, "a chimeric gene comprising a polynucleotide", and the claim also recites in line 5, "said polynucleotide comprises at least a portion of the gene" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-9, 19, 21 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Walker A. *et al.* The Plant Cell; Vol. 11, pp. 1337-1349.

The claims are broadly drawn to unspecified fragments of SEQ ID NO: 147, sequences that have at least 70% identity to SEQ ID NO: 147, sequences that hybridize to SEQ ID NO: 147 under conditions of unspecified high stringency, vectors and expression cassettes comprising said sequences, methods of increasing oil or protein content by transformation therewith or by disrupting a function of a protein in the phenylpropanoid pathway, and plants thereof.

Walker teaches a TTG1 mutant *Arabidopsis* plant that is a mutant in trichome differentiation and anthocyanin biosynthesis i.e. lacking trichomes and purple pigmentation in the seed coat that is a disruption or suppression of a protein in the phenylpropanoid pathway; and isolation of the TTG1 gene that would hybridize to SEQ ID NO: 147 and comprises a fragment of unspecified length of SEQ ID NO: 147; and complementation of the TTG1 mutant with the isolated wild type *Arabidopsis* TTG1 genomic clone using a vector and expression cassette wherein the genomic fragment of the *Arabidopsis* TTG1 clone comprises a seed specific or tissue specific promoter (See Results and Discussion sections); and wherein reduced protein or oil content is an inherent feature of a plant having a disrupted phenylpropanoid pathway thus the reference teaches all the limitations of claims 1-5, 7-9, 19, 21 and 28-30.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-10, 12-13, 19, 21 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker A. *et al.* The Plant Cell; Vol. 11, pp. 1337-1349 in view of WO 99/00501 published 7 January 1999.

The claims are broadly drawn to unspecified fragments of SEQ ID NO: 147, sequences that have at least 70% identity to SEQ ID NO: 147, sequences that hybridize to SEQ ID NO: 147 under conditions of unspecified high stringency, vectors and expression cassettes comprising said sequences, methods of increasing oil or protein content by transformation therewith or by disrupting a function of a protein in the phenylpropanoid pathway, and plants thereof.

Walker teaches a TTG1 mutant *Arabidopsis* plant that is a mutant in trichome differentiation and anthocyanin biosynthesis i.e. lacking trichomes and purple pigmentation in the seed coat that is a disruption or suppression of a protein in the phenylpropanoid pathway; and isolation of the TTG1 gene that would hybridize to SEQ ID NO: 147 and comprises a fragment of unspecified length of SEQ ID NO: 147; and complementation of the TTG1 mutant with the isolated wild type *Arabidopsis* TTG1 genomic clone using a vector and expression cassette wherein the genomic fragment of the *Arabidopsis* TTG1 clone comprises a seed specific or tissue specific promoter (See Results and Discussion sections); and wherein reduced protein or oil

content is an inherent feature of a plant having a disrupted phenylpropanoid pathway thus the reference teaches all the limitations of claims 1-5, 7-9, 19, 21 and 28-30.

Walker does not teach isolation of a polynucleotide sequence that has at least 70% sequence identity to SEQ ID NO: 147 and that encodes a transcription factor or construction of a chimeric gene sufficient to suppress expression of TTG1.

WO 99/00501 teaches the *Arabidopsis* TTG1 sequence (page 9) and TTG1 homologues *Matthiola incana*, cotton and tobacco; and directs one of ordinary skill in the art to the isolation of TTG1 homologues from the related and commercially important *Brassica napus* species (page 24); and transformation of pants with a chimeric gene that would disrupt TTG1 (see pages 43-44 and Claims 13, 39, 40 and 41).

It would have been obvious to modify the invention of Walker to further isolate DNA sequence that have at least 70% sequence identity to SEQ ID NO: 147 and to transform plants with a chimeric construct comprising a portion of a TTG1 gene sufficient to suppress the endogenous expression of a TTG1 gene as taught in the WO 99/00501 document. One of ordinary skill would have been motivated by the teachings of Walker that TTG1 was an important regulator of gene expression in plants and of commercial value for the isolation of TTG1 homologues from related Brassica species as taught by WO 99/00501 and that one of ordinary skill in the art would appreciate the value of transformating plants withTTG1 to suppress or alter or manipulate a phenotype of commercial intrest; and would have a reasonable expectation of success given the success of Walker and the WO 99/00501 document in isolating TTG1 genes from plants and that transformation of plant species such as soybean or canole were known in the art.

All claims are rejected.

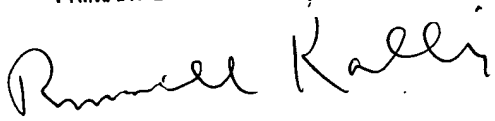
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kallis whose telephone number is (571) 272-0798. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Russell Kallis Ph.D.
November 8, 2006

RUSSELL P. KALLIS, PH.D.
PRIMARY EXAMINER



Attachement #1

```
RESULT 7
ATH133743
LOCUS       ATH133743               5777 bp    DNA     linear   PLN 26-JAN-2001
DEFINITION  Arabidopsis thaliana ttg1 gene.
ACCESSION   AJ133743
VERSION     AJ133743.1  GI:5123715
KEYWORDS    anthocyanin biosynthesis; trichome initiation; ttg1 gene.
SOURCE      Arabidopsis thaliana (thale cress)
  ORGANISM  Arabidopsis thaliana
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
            rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
REFERENCE   1
  AUTHORS   Walker,A.R., Davison,P.A., Bolognesi-Winfield,A.C., James,C.M.,
            Srinivasan,N., Blundell,T.L., Esch,J.J., Marks,M.D. and Gray,J.C.
  TITLE     The TRANSPARENT TESTA GLABRA1 locus, which regulates trichome
            differentiation and anthocyanin biosynthesis in Arabidopsis,
            encodes a WD40 repeat protein
  JOURNAL   Plant Cell 11 (7), 1337-1350 (1999)
   PUBMED   10402433
REFERENCE   2  (bases 1 to 5777)
  AUTHORS   Walker,A.R.
  TITLE     Direct Submission
  JOURNAL   Submitted (16-MAR-1999) Walker A.R., Department of Plant Sciences,
            University of Cambridge, Downing St., Cambridge, CB2 3EA, UNITED
            KINGDOM
FEATURES             Location/Qualifiers
     source          1. .5777
                     /organism="Arabidopsis thaliana"
                     /mol_type="genomic DNA"
                     /db_xref="taxon:3702"
                     /chromosome="V"
                     /map="29.5"
                     /ecotype="Landsberg erecta"
     gene            3271. .5289
                     /gene="ttg1"
     mRNA            join(3271. .4407,5108. .5289)
                     /gene="ttg1"
     exon            3271. .4407
                     /gene="ttg1"
                     /number=1
     CDS             3381. .4406
                     /gene="ttg1"
                     /function="regulation of trichome initiation and
                     anthocyanin biosynthesis"
                     /codon_start=1
                     /product="Ttg1 protein"
                     /protein_id="CAB45372.1"
                     /db_xref="GI:5123716"
                     /db_xref="GOA:Q9XGN1"
                     /db_xref="UniProtKB/Swiss-Prot:Q9XGN1"
                     /translation="MDNSAPDSLSRSETAVTYDSPYPLYAMAFSSLRSSSGHRIAVGS
                     FLEDYNNRIDILSFDSDSMTVKPLPNLSFEHPYPPTKLMFSPPSLRRPSSGDLLASSG
                     DFLRLWEINEDSSTVEPISVLNNSKTSEFCAPLTSFDWNDVEPKRLGTCSIDTTCTIW
                     DIEKSVVETQLIAHDKEVHDIAWGEARVFASVSADGSVRIFDLRDKEHSTIIYESPQP
                     DTPLLRLAWNKQDLRYMATILMDSNKVVILDIRSPTMPVAELERHQASVNAIAWAPQS
                     CKHICSGGDDTQALIWELPTVAGPNGIDPMSVYSAGSEINQLQWSSSQPDWIGIAFAN
                     KMQLLRV"
     intron          4408. .5107
                     /gene="ttg1"
                     /number=1
```

```
     exon            5108. .5289
                     /gene="ttg1"
                     /number=2
ORIGIN

  Query Match           65.7%;  Score 679.6;  DB 4;  Length 5777;
  Best Local Similarity  79.6%;  Pred. No. 3.3e-126;
  Matches  821;  Conservative    0;  Mismatches  199;  Indels   12;  Gaps    1;

Qy         11 CCATGGACAACTCAGCTCCGGACTCTTTACCTAGATCGGAAACCGCCGTCACCTACGACT 70
               ||||||| || |||||||| || || ||| | |||||||||||||||||||| |||||||
Db       3379 CCATGGATAATTCAGCTCCAGATTCGTTATCCAGATCGGAAACCGCCGTCACATACGACT 3438

Qy         71 CTCCGTACCCGCTCTACGCGATGTCCTT----------CTCCTCCTCCACCCACCGAA 118
               | || || || |||||||| ||| | ||           ||| ||||||   ||| |||
Db       3439 CACCATATCCACTCTACGCCATGGCTTTCTCTTCTCTCCGCTCATCCTCCGGTCACAGAA 3498

Qy        119 TCGCCGTCGGGAGCTTCCTCGAGGACTACAACAACCGCATCGACATCCTCTCCTTCGACT 178
               |||||||||| |||||||||| || |||||||||||||||||||| ||||| ||||| |
Db       3499 TCGCCGTCGGAAGCTTCCTCGAAGATTACAACAACCGCATCGACATTCTCTCTTTCGATT 3558

Qy        179 CCGACTCCATGTCCCTCAAGCCCCTTCCATCCCTCTCCTTCGAGCACCCTTACCCTCCCA 238
               |||| || ||| || | ||||| || ||    |||||||||||||| ||||| ||||| |
Db       3559 CCGATTCAATGACCGTTAAGCCTCTCCCGAATCTCTCCTTCGAGCATCCTTATCCTCCAA 3618

Qy        239 CCAAGCTCATGTTCAGTCCCCCCTCCCTCCGCCGCAGCGGCGGGGGTGACCTCCTCGCCT 298
               | ||||| |||||||||| || || ||||| ||      |   || || |||||||| |
Db       3619 CAAAGCTAATGTTCAGTCCTCCTTCTCTCCGTCGTCCTTCCTCCGGAGATCTCCTCGCTT 3678

Qy        299 CCTCCGGCGACTTCCTCCGCCTCTGGGAGGTCAACGAAGACTCCTCCTCCGCGGAGCCAG 358
               |||||||||| |||||||| || |||||  | |||||||| || ||  |||  ||||||
Db       3679 CCTCCGGCGATTTCCTCCGTCTTTGGGAAATTAACGAAGATTCATCAACCGTCGAGCCAA 3738

Qy        359 TATCGGTCCTCAACAACAGCAAGACGAGCGAGTTCTGCGCGCCGCTGACCTCCTTCGACT 418
               | ||||| |||||||||||||| |||||||||| || |||||| |||| |||||||| |
Db       3739 TCTCGGTTCTCAACAACAGCAAAACGAGCGAGTTTTGTGCGCCGTTGACTTCCTTCGATT 3798

Qy        419 GGAACGACGTGGAGCCGAAGCGGTTAGGCACGTGCAGCATCGACACCACGTGCACGATCT 478
               ||||||| || |||||||| ||  | || || || || || || || ||||| ||||| |
Db       3799 GGAACGATGTAGAGCCGAAACGTCTCGGAACTTGTAGTATTGATACGACGTGTACGATTT 3858

Qy        479 GGGACGTGGAGAGGTCCGTGGTGGAGACGCAGCTCATCGCGCACGACAAGGAGGTCCACG 538
               ||||  | |||| ||| || || ||||| ||||| || || || || || ||||| || |
Db       3859 GGGATATTGAGAAGTCTGTTGTTGAGACTCAGCTTATAGCTCATGATAAAGAGGTTCATG 3918

Qy        539 ACATCGCGTGGGGGGAGGCTAGGGTTTTCGCCTCGGTCTCCGCCGACGGATCGGTGAGGA 598
               |||| || ||||| || |||||||||||||| || ||||| || || ||||| || ||||
Db       3919 ACATTGCTTGGGGAGAAGCTAGGGTTTTCGCATCAGTCTCTGCTGATGGATCCGTTAGGA 3978

Qy        599 TCTTCGATCTGCGCGACAAGGAGCACTCCACCATCATCTACGAGAGCCCCCAGCCCGATA 658
               |||| ||| | || || ||||| || || || ||||| |||||||| || ||||| ||||
Db       3979 TCTTTGATTTACGTGATAAGGAACATTCTACAATCATTTACGAGAGTCCTCAGCCTGATA 4038

Qy        659 CGCCGCTCCTGAGGCTCGCGTGGAACAAGCAGGACTTGCGGTGTATGGCCACGATTCTGA 718
               ||||  |  | || || || |||||||| || ||  |  | | |||||| |||||| |||
Db       4039 CGCCTTTGTTAAGACTTGCTTGGAACAAACAAGATCTTAGATATATGGCTACGATTTTGA 4098

Qy        719 TGGATTCGAATAAGGTTGTCATTCTCGACATTCGATCGCCGACGATGCCGGTCGCCGAGC 778
               ||||||| |||||||||| |||||||| ||||| |||||||| ||||| || || ||||
Db       4099 TGGATTCTAATAAGGTTGTGATTCTCGATATTCGTTCGCCGACTATGCCTGTTGCTGAGC 4158
```

```
Qy       779 TTGAAAGGCACCAGGGGAGTGTGAACGCGATTGCGTGGGCGCCGCAGAGCTGTAAGCATA 838
             ||||||| || ||||  |||||||| || || || |||||||| |||||||||| ||||
Db      4159 TTGAAAGACATCAGGCTAGTGTGAATGCTATAGCTTGGGCGCCTCAGAGCTGTAAACATA 4218

Qy       839 TCTGCTCGGGTGGGGATGACGCGCAGGCTCTTATCTGGGAGTTGCCGACGATGGCTGGGC 898
             | || || ||||| |||||  | |||||||||| |||||| | || ||  | ||||| |
Db      4219 TTTGTTCTGGTGGTGATGATACACAGGCTCTTATTTGGGAGCTTCCTACTGTTGCTGGAC 4278

Qy       899 CGAATGGGATTGATCCCATGTCGGTTTACTCGGCCGGTTCGGAGATTAACCAGTTGCAGT 958
             | |||||||||||||| |||||||||| ||||| |||||||||||||| ||||||||||
Db      4279 CCAATGGGATTGATCCGATGTCGGTTTATTCGGCTGGTTCGGAGATTAATCAGTTGCAGT 4338

Qy       959 GGTCGGCTTCTCTGCCTGATTGGATTGGCATTGCGTTTGCTAACAAAATGCAGCTCCTCA 1018
             ||||  |||| | |||||||||||||| ||||| |||||||||||||||||||||| |
Db      4339 GGTCTTCTTCGCAGCCTGATTGGATTGGTATTGCTTTTGCTAACAAAATGCAGCTCCTTA 4398

Qy      1019 GAGTTTGACCTG 1030
             |||||||| ||
Db      4399 GAGTTTGAGGTG 4410
```